

2015 Wisconsin Health Trends

Making Wisconsin the Healthiest State



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University of Wisconsin
Population Health Institute
SCHOOL OF MEDICINE AND PUBLIC HEALTH



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The 2015 Wisconsin Health Trends: Progress Report. University of Wisconsin Population Health Institute, 2016.

Executive Summary

The 2015 Wisconsin Health Trends: Progress Report

Background

The [Wisconsin State Health Plan for 2020](#) established a goal for all state residents to live longer and better. Progress toward this goal can be measured by monitoring health outcomes – and the factors that contribute to those outcomes – for the state’s overall population, as well as by considering the health status of specific populations within the state. This fourth annual report assesses progress for 19 indicators of health outcomes and factors in Wisconsin by examining trends over the past 10 years and determining whether current rates are better or worse than expected.

Approach

Ten-year baseline trends for 19 leading health indicators were measured and compared to an improvement of one percent per year, the standard developed for the federal [Healthy People 2020](#). To assess recent progress, the most current rate for each indicator was compared to the expected rate had the baseline trend continued. In addition, where data are available, we have analyzed 10 year trends on these leading health indicators broken out by gender, race and ethnicity, geography, and socioeconomic status. These detailed analyses are available [online](#).

Results

When considering the overall population of the state, the 2015 report shows that the baseline mortality trends for all age groups in Wisconsin continue to improve, with the exception of the group of 25-64 year olds, for whom the mortality rate has remained stable. The greatest improvement in mortality is among children and young adults (ages 1-24). One health outcome, self-reported health, remains a cause for concern with an increasing percentage of adults reporting their health as fair or poor.

Within health behaviors, the rates of smoking, teen births, and excessive drinking continue to show improvement with decreasing trends while obesity rates continue to rise.

Although the most recent values for all socioeconomic factors were better than expected, the overall trends continue to worsen for all of these factors, including high school drop-outs, unemployment, children in poverty, and violent crime rate.

However, these patterns of improving health do not hold true for all of the subgroups that make up the state’s population, e.g.:

- The percentage of children in poverty is much higher for those living in urban counties compared with those living in rural, non-urban, and suburban counties.
- African American infants are almost twice as likely to be born at a low birthweight compared with infants of other racial/ethnic subgroups.
- Smoking rates are more than four times higher for those without a high school degree compared with those with a college degree.
- Male death rates are higher than female death rates across all age groups.

Readers can find disparity graphs by gender, race/ethnicity, geography, or socioeconomic status on our website: <https://uwphi.pophealth.wisc.edu/programs/match/healthiest-state/progress-report/2015/disparity.htm>.

Summary

Wisconsin continues to make progress toward the 2020 goal of residents living longer. However, not everyone in the state is living healthier. Many trends within the state, including increasing rates of people reporting their overall health to be fair or poor, adult obesity, and worsening social and economic factors, will lead to poorer health outcomes and more disparities if left unaddressed. Moreover, current trends in health outcomes and health factors are markedly different for various subgroups within the state’s population. Efforts to improve health in Wisconsin must consider the full array of factors that influence how long and how well we live and reevaluate the circumstances that may produce longer and healthier lives for some – but not all – of the state’s residents.



Overview of *The 2015 Wisconsin Health Trends: Progress Report*






The 2015 Wisconsin Health Trends: Progress Report provides a way to assess whether Wisconsin is achieving the twin goals of the [Wisconsin State Health Plan: Healthiest Wisconsin 2020](#): Improve health across the life span, and eliminate health disparities and achieve health equity.

How we measure health




The 19 health indicators examined in this report are based on a model of population health (from the *County Health Rankings*) that emphasizes that many factors, which if improved, can contribute to longer, healthier lives for all. We analyzed data for eight measures of health outcomes and 11 measures reflecting key health behavior, clinical care, socioeconomic, and environmental factors that impact health outcomes.

How progress is assessed

We calculated the annual percent change (APC) for each of the 19 health indicators over 10 years. For each indicator, an increasing APC indicates a worsening baseline health trend, while a decreasing APC indicates an improving trend.

- A  or  indicates Wisconsin improved on the health indicator during the past 10 years;
- A  indicates Wisconsin's performance on the health indicator has been stable; and
- A  or  indicates Wisconsin's performance worsened during the past 10 years.

Using these baseline trends, we determine what the "expected" current rate (for the most recent year available) would be for each indicator if the past baseline 10-year trend continued. We compare this expected rate with the current "observed" rate to assess whether it is better or worse than predicted. Current progress is determined by comparing the expected rate to the observed rate.

- A  indicates Wisconsin is performing better than expected for the health indicator;
- A  indicates Wisconsin is performing approximately the same as expected;
- A  indicates Wisconsin is performing worse than expected for the health indicator.









The 2015 Wisconsin Health Trends: Progress Report is intended for use by public health professionals, policy makers, those engaged in local health improvement initiatives, and concerned citizens who are interested in assessing long-term and recent trends in leading health indicators. Readers may wish to use the *Progress Report* findings to begin or expand efforts to improve Wisconsin's performance on one or more of these leading health indicators. To identify evidence-based strategies that promote health improvement, visit whatworksforhealth.wisc.edu. To find resources to develop an action plan that works for your community, please visit www.countyhealthrankings.org.

In addition to *The 2015 Wisconsin Health Trends: Progress Report*, information on health trends among specific subgroups is now available online. Where data are available, graphs show trend data for the 19 leading health indicators included in this report, which are further broken down by gender, race/ethnicity, geography, and socioeconomic status. These graphs reveal how disparities in health factors and health outcomes within the state have improved or worsened in the last ten years. An example of the disparity graphs can be found on page 6. All others can be accessed at <http://uwphi.pophealth.wisc.edu/programs/match/healthiest-state/progress-report/2015/disparity.htm>.











The 2015 Wisconsin Health Trends: Progress Report


Health Outcomes

Current Rate (versus expected)				
Baseline Trend	Progress	Worse 	No Difference 	Better 
	Worse  	Self-reported health		
	No Change 	25-64 year old death rate		Low birthweight
	Improvement  	Premature death (< 75) rate All ages death rate 65+ year old death rate	Infant death rate 1-24 year old death rate	




Health Factors

Current Rate (versus expected)				
Baseline Trend	Progress	Worse 	No Difference 	Better 
	Worse  		Obesity Violent crime rate	No health insurance (18-64) High school drop-outs Unemployment Children in poverty
	No Change 			
	Improvement  		No health insurance (0-17) Smoking	Air pollution Excessive drinking Teen birth rate

Baseline Trend Progress

	= $APC^* > +1.0\%/year$
	= $+1.0\%/year \geq APC > +0.5\%/year$
	= $+0.5\%/year \geq APC \geq -0.5\%/year$
	= $-0.5\%/year > APC \geq -1.0\%/year$
	= $-1.0\%/year > APC$

Current Progress

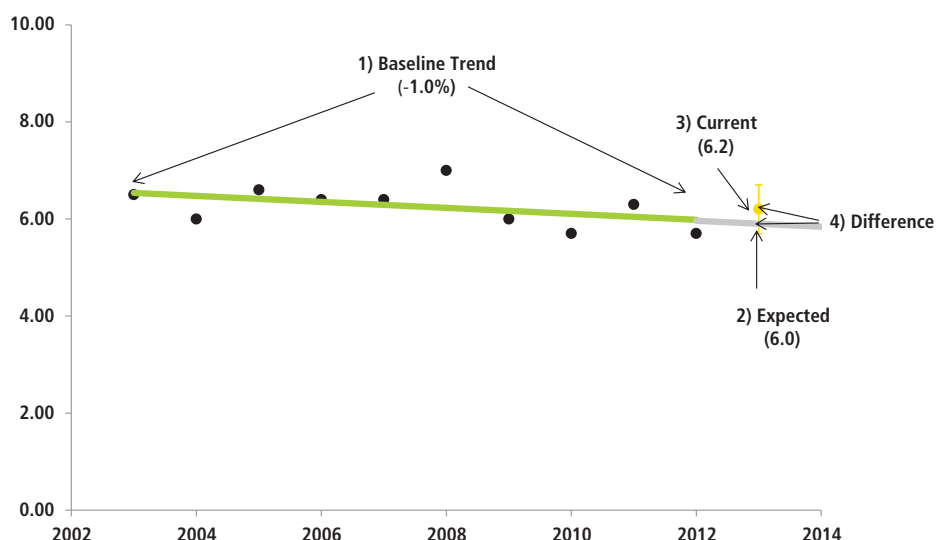
	= Current Rate is worse than expected rate ($p < 0.10$)
	= Current rate is the same as expected rate
	= Current rate is better than expected rate ($p < 0.10$)

*APC = Annual Percent Change

How to Interpret the Report

The 2015 Wisconsin Health Trends: Progress Report is useful for examining long-term trends and assessing how current rates of specific health indicators compare to those trends. Below is a guide to understanding the numbers and graphs provided in this report.

Infant Death Rate per 1,000 Live Births



1. The known data points for the 10 years prior to the current year are plotted and a best fit linear regression is added to the graph and colored according to the measure's APC baseline trend progress. A decreasing line (↘) indicates improvement: this example shows a reduction in infant deaths.
2. The line is extended in grey in order to show the expected value if Wisconsin continued with the same trend as that of the previous 10 years (→).
3. The current observed value (●) is shown and colored according to current progress, along with its 90% statistical confidence interval (where possible). Comparing this point to the expected trend line provides a comparison of how well Wisconsin is currently doing compared to expectations.
4. The percent difference is calculated as:

$$\text{Percent Difference} = \frac{\text{observed value} - \text{expected value}}{\text{expected value}} \times 100$$

For the infant death rate example above, the baseline trend shows that infant mortality rates decreased 1.0% per year (i.e., an improving trend). This is good news for Wisconsin. The trend is improving. However, the current rate (using data from 2013, the most recent year for which data was available), is 4.1% more than expected (6.2 vs. 6.0). This difference – at a p=0.1 level – is not significant, indicating that Wisconsin performed approximately as expected.

2015 Health Progress Assessment

			CURRENT YEAR				10 YR. TREND	
		Measure	Current Observed Rate	Expected	Percent Difference	Current Progress	Baseline Trend (% change/year)	10-year Trend Progress
HEALTH OUTCOMES		All ages death rate (per 100,000)	720	696	+3.4	🔴	-0.8	⬇️
		Premature death rate (YPLL-75 per 100,000)	5902	5573	+5.9	🔴	-0.9	⬇️
		Infant death rate (per 1,000)	6.2	6.0	+4.1	🟡	-1.0	⬇️
		1-24 year old death rate (per 100,000)	32.9	31.3	+5.1	🟡	-2.8	⬇️
		25-64 year old death rate (per 100,000)	292	278	+5.0	🔴	-0.3	➡️
		65+ year old death rate (per 100,000)	4339	4217	+2.9	🔴	-0.9	⬇️
		Low birthweight (%)	7.0	7.2	-2.7	🟢	+0.5	➡️
		Self-reported poor or fair health (%)¹	15.4				+2.0	⬆️
HEALTH FACTORS	Health Behaviors	Smoking (%)¹	18.7				-1.0	⬇️
		Obesity (%)¹	29.8				+3.1	⬆️
		Excessive drinking (%)¹	21.1				-1.3	⬇️
		Teen birth rate (per 1,000)	19.9	23.5	-15.2	🟢	-3.5	⬇️
	Clinical Care	No health insurance (0-17) (%)²	6.0				-1.4	⬇️
		No health insurance (18-64) (%)²	14.7				+1.9	⬆️
	Social and Economic Factors	High school drop-outs (%)	1.9	2.2	-14.9	🟢	+0.9	⬆️
		Unemployment (%)	5.5	8.4	-34.4	🟢	+6.4	⬆️
		Children in poverty (%)	18.4	19.2	-4.1	🟢	+4.2	⬆️
		Violent crime rate (per 100,000)	280	283	-0.9	🟡	+2.3	⬆️
	Physical Environment	Air Pollution (µg/m³)	9.3	10.2	-8.7	🟢	-0.8	⬇️

Current Observed Rate = Rate or percentage provided for the most current year from the data sources

Expected = Value expected for the current year using a 10-year linear regression model for the previous ten years

Percent Difference = (Observed Value – Expected Value) / Expected Value*100

Current Progress = Based on magnitude and significance of the percent difference value (see page 3 for cut-off values)

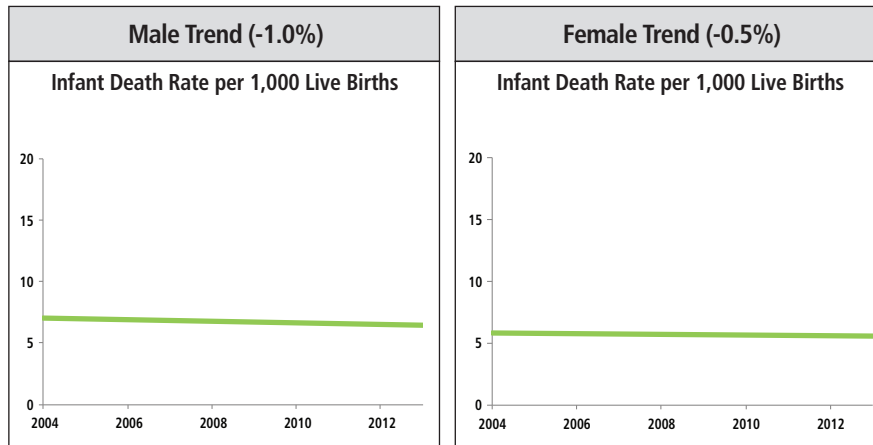
Baseline Trend = (e^{b-1})*100 where e=exponential function and b=slope of the logarithmic trend-line

Trend Progress = Based on magnitude of the baseline trend (see page 3 for cut-off values)

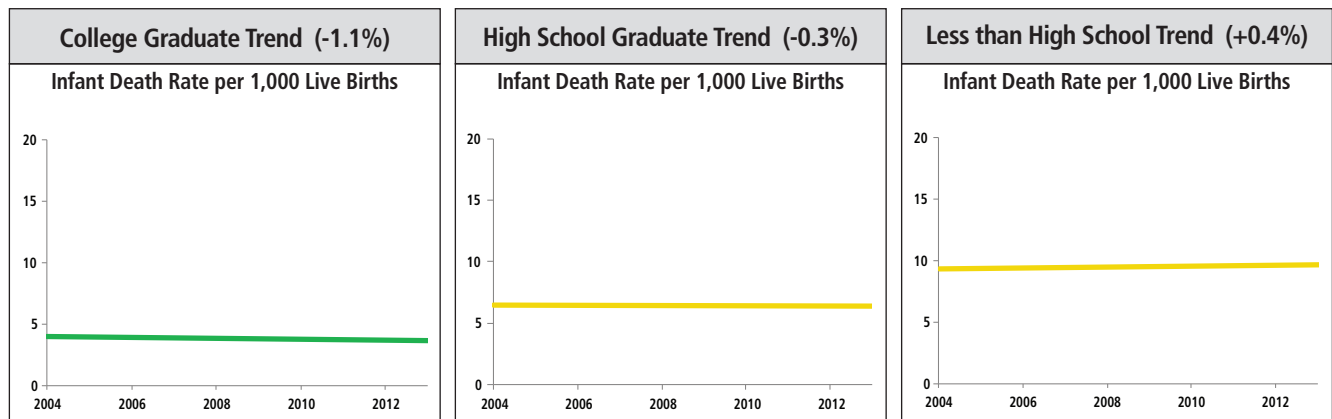
Health Disparity Trend Graphs

A complete set of health disparity trend graphs for all measures in this report is available at uwphi.pophealth.wisc.edu/programs/match/healthiest-state/progress-report/2015/disparity.htm. Examples based on infant death rates are provided here:

Gender





Socioeconomic Factors (Mother's Education)

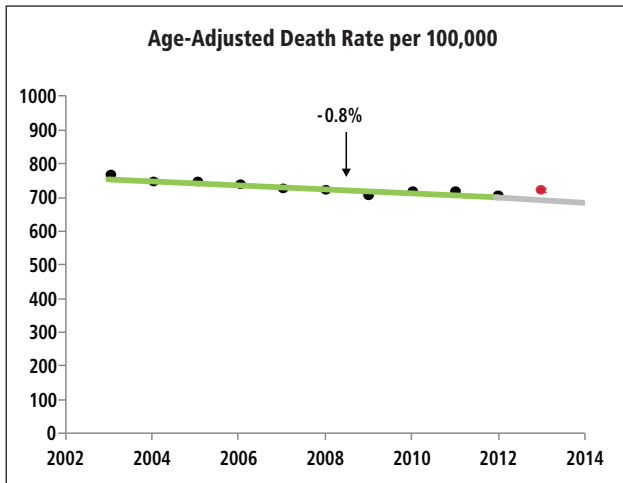


These sample graphs show that although Wisconsin's infant death rate is decreasing overall, disparities by subgroup are apparent when the trend and current values are broken out by gender, race/ethnicity, geography, and socioeconomic level. The 10-year trend for infant deaths is improving for the subgroups where the trend line is decreasing (e.g., for college graduates). However, the 10-year trend for infant deaths is not improving for those who have graduated high school nor for those who have not graduated high school, as is shown by the yellow trend line. Wisconsin has significant work to do in order to bring infant death rates for all subgroups down to the level of the healthiest subgroup. For example, the trend line for high school graduates reflects rates that are nearly twice as high as the rates for college graduates.



Health Outcome Trends

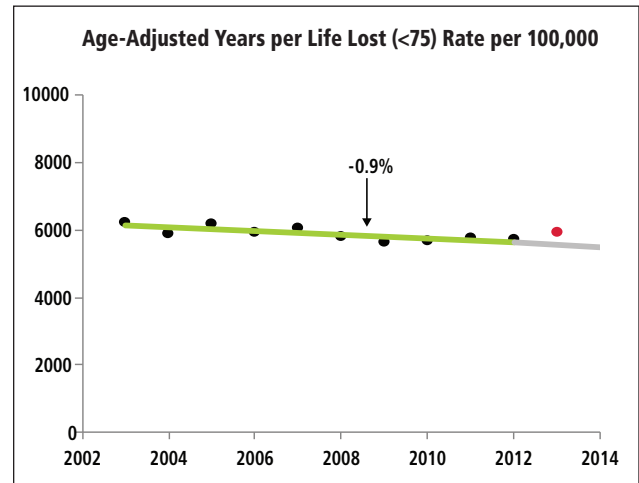
All Ages Death

Baseline Trend = -0.8%/year Better 
Current Rate (vs. Expected) = +3.4% Worse 





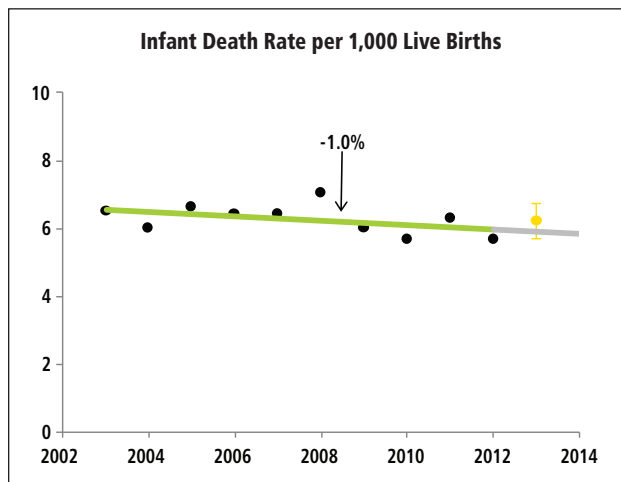
Premature Death

Baseline Trend = -0.9%/year Better 
Current Rate (vs. Expected) = +5.9% Worse 





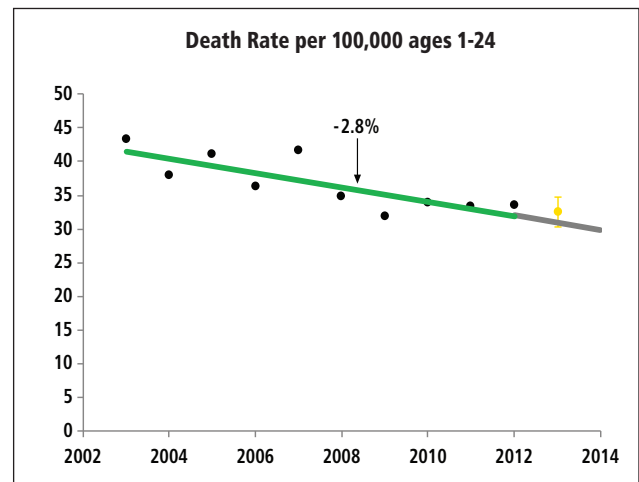
Infant Death

Baseline Trend = -1.0%/year Better 
Current Rate (vs. Expected) = +4.1% No difference 



1-24 Year Old Death

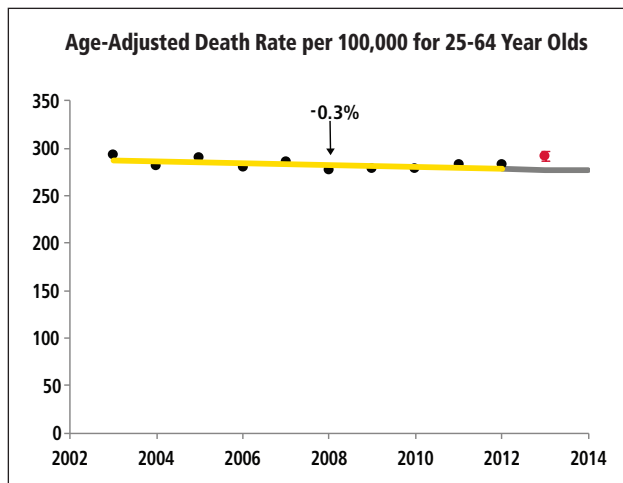
Baseline Trend = -2.8%/year Much Better 
Current Rate (vs. Expected) = +5.1% No difference 



Health Outcome Trends *(continued)*

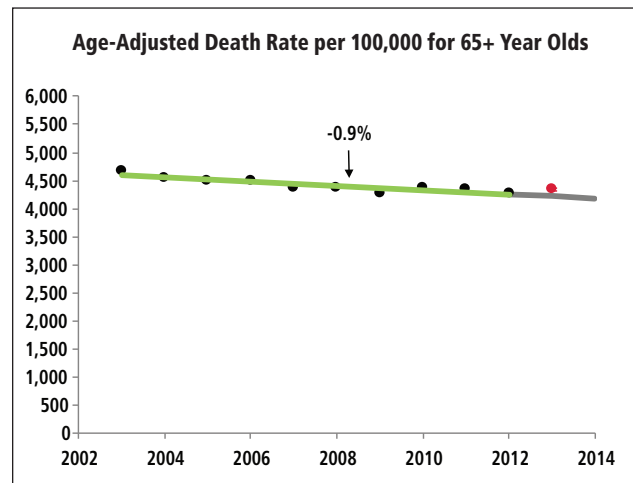
25-64 Year Old Death

Baseline Trend = -0.3%/year No Difference →
Current Rate (vs. Expected) = +5.0% Worse ●



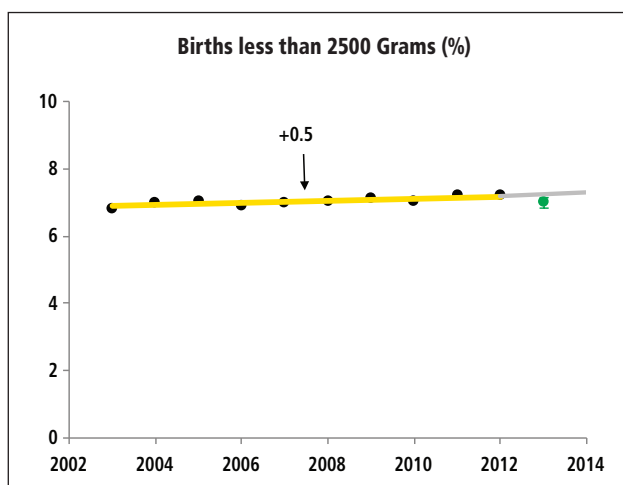
65+ Year Old Death

Baseline Trend = -0.9%/year Better ↘
Current Rate (vs. Expected) = +2.9% Worse ●



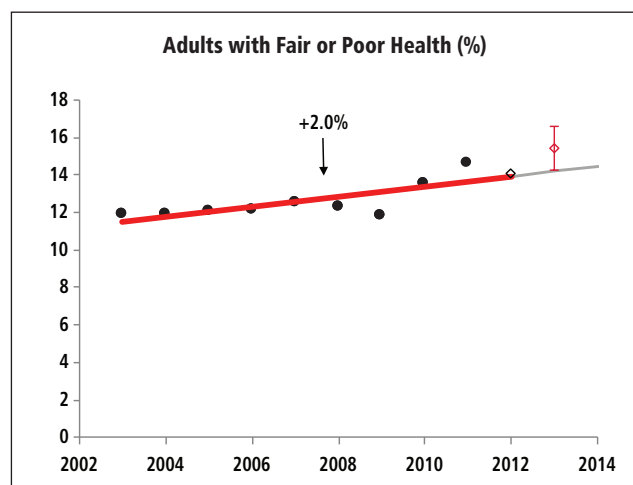
Low Birthweight

Baseline Trend = +0.5%/year No Difference →
Current Rate (vs. Expected) = -2.7 Better ●



Self-Reported Health¹

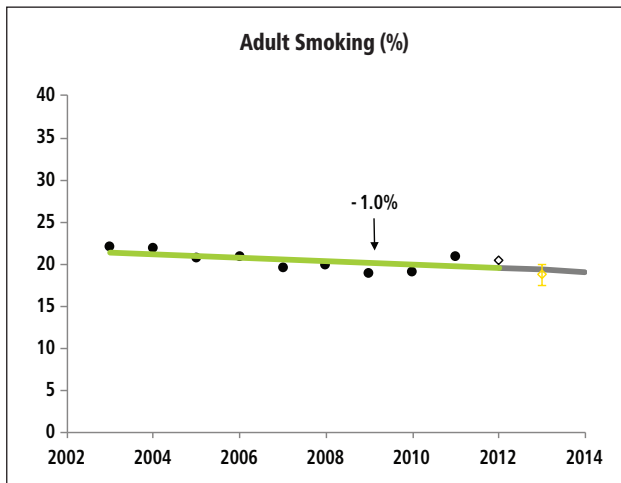
Baseline Trend = +2.0%/year Much Worse ↗



Health Behavior Trends

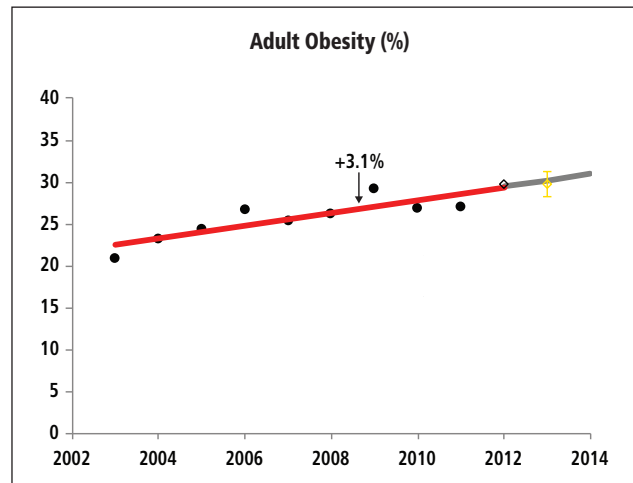
Smoking¹

Baseline Trend = -1.0%/year Better ➡



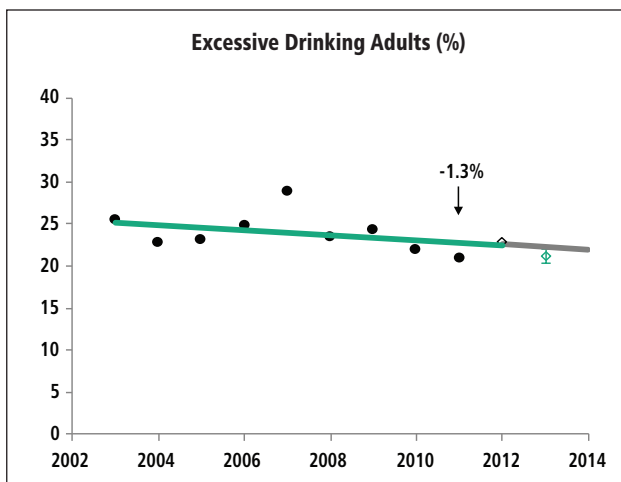
Obesity¹

Baseline Trend = +3.1%/year Much Worse ➡



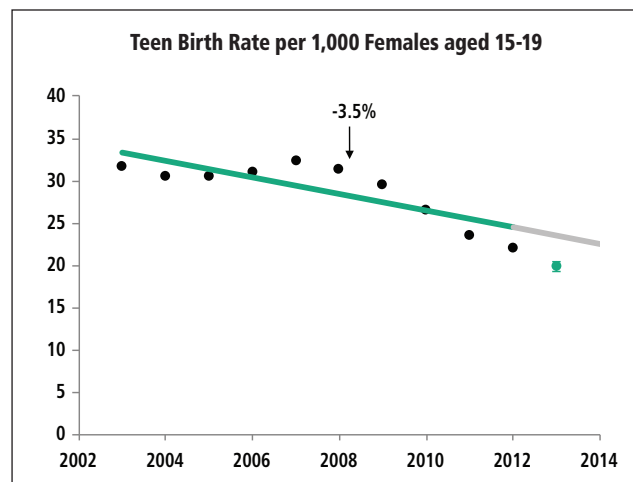
Excessive Drinking¹

Baseline Trend = -1.3%/year Much Better ➡




Teen Birth Rate

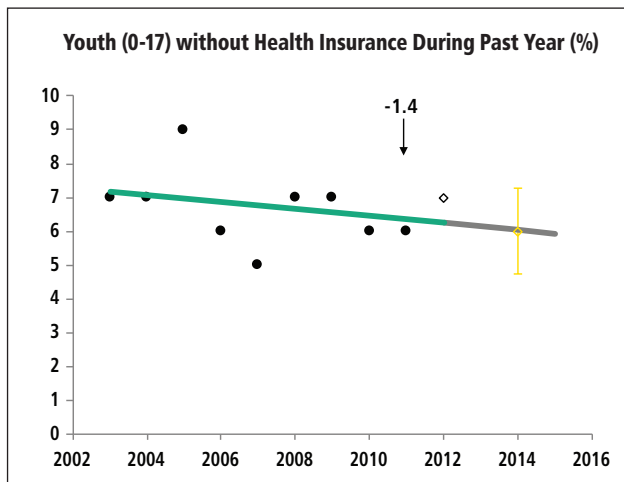
Baseline Trend = -3.5%/year Much Better ➡
Current Rate (vs. Expected) = -15.2% Better ●




Clinical Care Trends

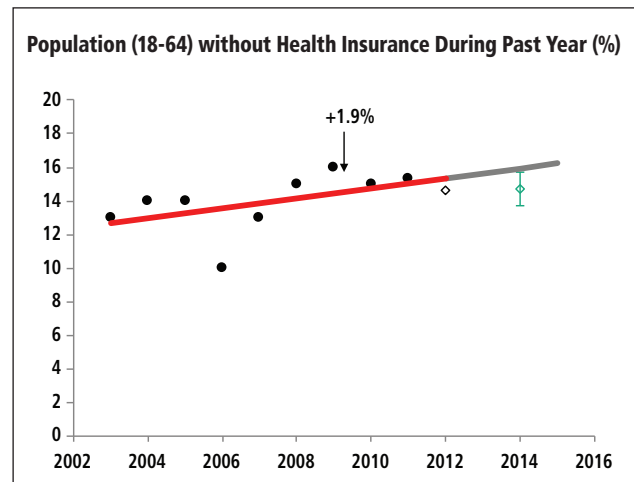
No Health Insurance (0-17)²

Baseline Trend = -1.4%/year Much Better 





No Health Insurance (18-64)²

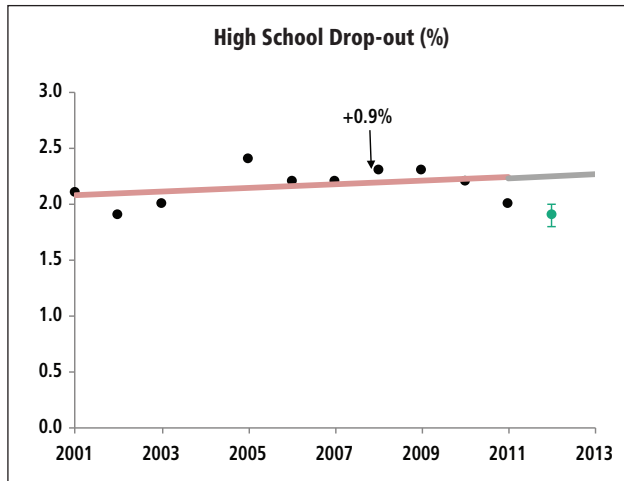
Baseline Trend = +1.9 %/year Much Worse 





Social and Economic Trends

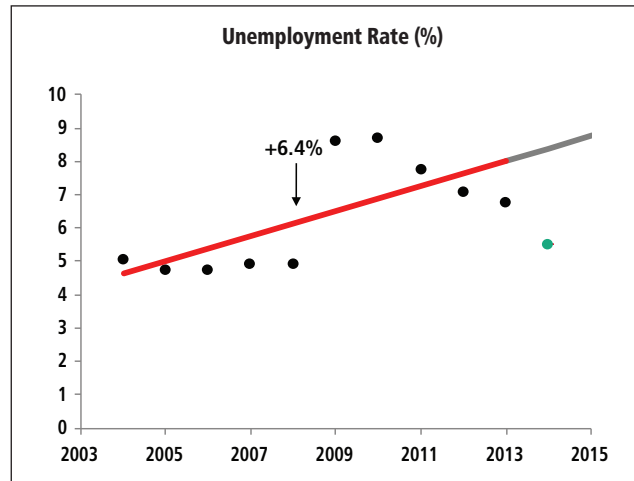
High School Drop-Outs^{3,4}

Baseline Trend = +0.9%/year Worse 
Current Rate (vs. Expected) = -14.9% Better 





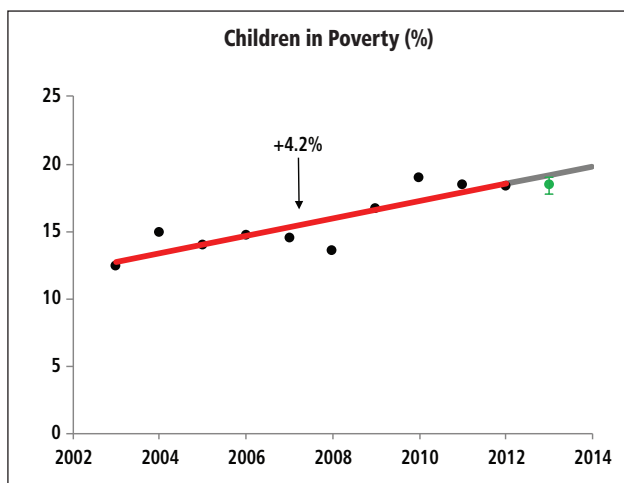
Unemployment Rate⁴

Baseline Trend = +6.4%/year Much Worse 
Current Rate (vs. Expected) = -34.4% Better 





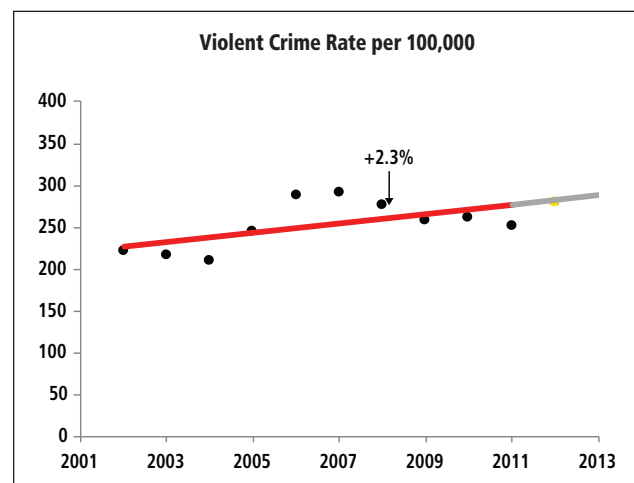
Children in Poverty

Baseline Trend = +4.2%/year Much Worse 
Current Rate (vs. Expected) = -4.1% Better 





Violent Crime Rate⁴

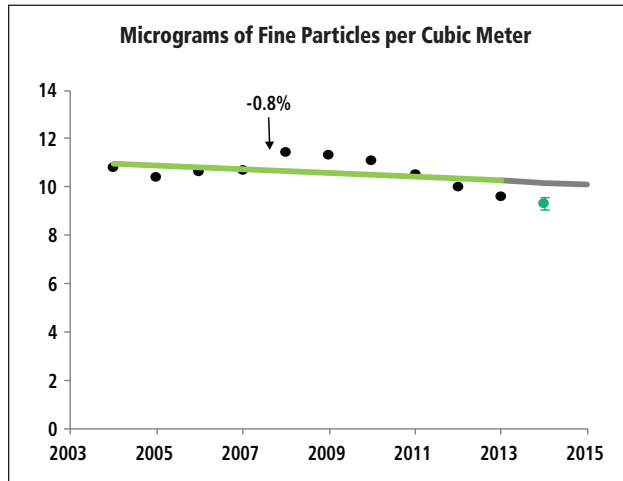
Baseline Trend = +2.3%/year Much Worse 
Current Rate (vs. Expected) = -0.9% No difference 



Physical Environment Trends

Air Pollution⁴

Baseline Trend = -0.8%/year Better 
 Current Rate (vs. Expected) = -8.7% Better 



Technical Notes

1. Due to methodological changes to sampling methods of the Behavioral Risk Factor Surveillance System (BRFSS), data from 2013 – the 'current observed value' – and data from 2012 is not directly comparable to that of previous years. The BRFSS methodology changed in 2011 but the dataset maintained a 'landline only' weighted variable, allowing for a 2011 variable that is comparable to previous years. For more information, please read the BRFSS Methodological Documents: <http://www.cdc.gov/surveillancepractice/reports/brfss/brfss.html>. A diamond is used instead of a circle for the 2012 and 2013 values to convey this discrepancy.
2. Due to changes to the sampling methods of the Family Health Survey data occurring in 2012, the data from 2014 – the 'current observed value' – and data from 2012 is not directly comparable to that of previous years. For more information, read the Family Health Survey Technical notes for 2012: <http://www.dhs.wisconsin.gov/publications/P4/p45369b-12.pdf>. A diamond is used instead of a circle for the 2012 and 2014 values to convey this discrepancy.
3. Due to a lack of comparability, the High School Drop-out data does not include the 2003-2004 school year.
4. Linear trends are used in this report in order to have a standard method for assessing progress across different measures. However, the limitations of using 10-year linear trends are evident in several measures. Using trend lines may have several issues, namely, 1) trends within trends (e.g., caused by a specific policy change) are not visible, 2) linearity may not be appropriate, and 3) the indicators use point estimates yet may have large confidence intervals, which means using a trend line may misrepresent the actual trend.



Data Sources

Measure	Source	Current Year	Baseline Trend Years	Measure Definition
All ages death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Number of deaths age-adjusted to the 2000 U.S. Standard
Premature (<75) death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Years per life lost before 75 (YPLL-75): the sum of the difference between age 75 and the age of death for deaths that occurred prior to 75, (age-adjusted to 2000 population) per 100,000 population
Infant death rate (per 1,000 live births)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Number of deaths before age 1 per 1,000 live births
1-24 year old death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Number of deaths between ages 1 and 14 per 100,000 population
25-64 year old death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Number of deaths between ages 25 and 64 per 100,000 population
65+ year old death rate (per 100,000)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Number of deaths between above age 65 per 100,000 population
Smoking (%)	Behavioral Risk Factor Surveillance System	2013 ¹	2003-2012	Percentage of adults who are current smokers
Low birthweight (%)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Percentage of live births for which the infant weighed less than 2,500 grams (approximately 5 lbs., 8 oz.)
Self-reported poor or fair health (%)	Behavioral Risk Factor Surveillance System	2013 ¹	2003-2012	Responses of "fair" or "poor" to the survey question: "In general, would you say that your health is excellent, very good, good, fair, or poor?"
Obesity (%)	Behavioral Risk Factor Surveillance System	2013 ¹	2003-2012	Percentage of adults with a Body Mass Index greater than or equal to 30kg/m ²
Excessive drinking (%)	Behavioral Risk Factor Surveillance System	2013 ¹	2003-2012	The percent of the adult population that consumed more than 4 (women) or 5 (men) alcoholic beverages on a single occasion in the past 30 days (binge drinking) or drank more than 1 (women) or 2 (men) drinks per day on average (heavy drinking)
Teen birth rate (per 1,000)	Wisconsin Interactive Statistics on Health	2013	2003-2012	Number of live births per 1,000 females aged 15-19
No health insurance (0-17) (%)	Family Health Survey	2014 ²	2003-2012	Percent of the population between ages 0 and 17 without continuous health insurance coverage during the past year
No health insurance (18-64) (%)	Family Health Survey	2014 ²	2003-2012	Percent of the population between ages 18 and 64 without continuous health insurance coverage during the past year
High school drop-outs (%)	National Center for Education Statistics	2012	2001-2011 ³	Count of drop-outs in grades 9-12 divided by the base enrollment for grades 9-12
Unemployment (%)	Bureau of Labor Statistics	2014	2004-2013	Unemployed (individuals who do not have a job, have actively looked in the prior 4 weeks, and are currently available for work) divided by workforce
Children in poverty (%)	Small Area Income and Poverty Estimates	2013	2003-2012	The percentage of children under age 18 living below the Federal Poverty Line
Violent crime rate (per 100,000)	Wisconsin Office of Justice Assistance	2012	2002-2011	Number of violent offenses (involve face-to-face confrontation between the victim and the perpetrator) per 100,000 population
Air Pollution (µg/m ³)	America's Health Rankings/Environmental Protection Agency	2014	2004-2013	The average exposure of the general public to particulate matter of 2.5 microns or less in size (PM2.5) measured in µg/m ³



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